

REMARKS**Claim Amendment**

New Claim 31 has been added. New Claim 31 is based on previously presented Claim 21, which recites plasticizer as an “optional” element. This amendment introduces no new matter.

Rejection of Claims 16, 20 and 21 Under 35. U.S.C. §102 (b) over U.S. Pat. 6,808,858

Claims 16, 20 and 21 are rejected under 35. U.S.C. §102 (b) over U.S. Pat. 6,808,858 (“Fuss”). With respect to Claim 16, the Examiner stated that a polymer comprising the units recited as elements (a), (b), and (d) of Claim 16 are taught by Fuss. With respect to Claim 20, the Examiner stated that Fuss teaches plasticizers. The Examiner did not provide any arguments supporting his conclusion that Claim 21 is anticipated by Fuss.

Applicants respectfully disagree with the Examiner.

The problem solved by the present invention is use of high-molecular weight polyvinyl acetals for production of films, coating and laminated glass without addition of a separate crosslinking agent or a subsequent acetalization (the English translation of the specification, page 3, first full paragraph). Applicants note that Claim 16, from which Claims 20 and 21 depend, is drawn to

A crosslinked polyvinyl acetal [...] [wherein] groups of formula (1) and of formula (4) are, at least in part, esterified with one another. (*See last two lines of Claim 16.*)

Thus, the polymer of Claim 16 is crosslinked via esterification of an alcohol of group (1) and an acid of group (4). Furthermore, Claim 21 requires that the polymer of Claim 16 be crosslinked thermally, at the temperature range from 120 °C to 280 °C.

There is no explicit teaching in Fuss that the disclosed polymer is crosslinked via subunits (1) and (4). Moreover, a polymer crosslinked via groups (1) and (4) would not be obtained if one were to follow the teachings of Fuss. It is well known that vigorous conditions are required to obtain polymers crosslinked via ester bond. Applicants present herewith Exhibit

A, a copy of page 739 of Vollhardt and Schore, *Organic Chemistry*, 2nd ed., W.H. Freeman and Co., 1994. Exhibit A states that

“[w]hen a carboxylic acid and an alcohol are mixed together, no reaction takes place.”

Heating is one of the ways of driving the reaction to completion. In fact, Applicants have found that temperatures of at least about 120 °C are required for the claimed type of crosslinking to occur (as claimed in Claim 21). Fuss, however, teaches that his reaction takes place at temperatures from 0 to 90 °C (column 5, lines 10-11). It follows that esterification of groups (1) and (4) is not inherently disclosed in Fuss.

Thus, Fuss does not teach, either expressly or inherently, each and every element of Claim 16.

Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of Claims 17-19 and 24-25 Under 35 U.S.C. §103 (a) over Fuss

The Examiner rejected Claims 17-19 and 24-25 under 35. U.S.C. §103 (a) over Fuss. The Examiner stated that the subject matter of these claims is inherently taught by Fuss.

Applicants respectfully disagree with the Examiner's rejection. Applicants first note that Claims 17-19 and 24-25 depend on Claim 16, which, as argued above by Applicants, is novel in view of Fuss.

Applicants further submit that Claim 16 is also non-obvious in view of Fuss. Indeed, Fuss fails to teach crosslinking and the methods that would enable one of ordinary skill to make a crosslinked polymer. Furthermore, Fuss invention relates to photosensitive compositions (see Abstract).

Conversely, as noted above, Applicants' invention solves the problem of providing high molecular weight polyvinyl acetals for the production of films, coats and laminated safety glass. Applicants report a number of unexpected advantages that result from employing crosslinked polymers. Thus, when the polymers of the present invention are used in manufacturing laminated safety glass, the glass can be produced in any shape (English translation of the specification, page 10, last paragraph through page 11, second full paragraph). When the

polymers of the present invention are employed as coating, crosslinking becomes apparent in enhanced resistance of such coating to solvents (page 12, second full paragraph). Furthermore, the processing properties of the inventive polymers of the present invention are markedly improved by crosslinking. For example, extrusion is facilitated (the paragraph spanning pages 12 and 13).

Fuss does not teach crosslinking the polymers disclosed therein. Even more significantly, the specific type of crosslinking required by the claimed invention (esterification of groups (1) and (4)) is not taught. Moreover, Fuss' polymers are used in photosensitive compositions and do not rely on or gain superior properties from crosslinking. Moreover, without experimentation, one of ordinary skill in the art would not know whether crosslinking would result in polymers suitable for coatings, films and laminates, let alone whether the enumerated advantages could be obtained.

Applicants submit, therefore, that Fuss does not motivate one of ordinary skill in the art to crosslink his polymers. Since Fuss neither teaches each and every element of Claim 16, nor motivates one to modify his teaching to arrive at the present invention, Claim 16 is non-obvious over Fuss.

Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of Claims 22, 23 and 26-30 Under 35 U.S.C. §103 (a) over Fuss in view of U.S. 2,332,889

The Examiner rejected Claims 22, 23 and 26-30 under 35 U.S.C. §103 (a) over Fuss in view of U.S. 2,332,889 ("D'Alelio").

The Examiner stated that D'Alelio teaches thermal treatment of copolymers of vinyl esters and organic nitriles. The Examiner stated that D'Alelio teaches that his compositions can be extruded at elevated temperatures, and that his compositions can be used for molding, laminating or coating. The Examiner stated that the motivation to combine Fuss and D'Alelio comes from the teaching in D'Alelio that elevated temperature treatment results in compositions which have good adhesion properties and excellent resistance to heat, water and solvents. The Examiner further stated that D'Alelio, in combination with Fuss, renders Claims 22, 23 and 26-30 *prima facie* obvious.

Applicants respectfully disagree with the Examiner's conclusion. Not only does the combination of Fuss and D'Alelio fail to teach each and every element of Claim 16, from which all the rejected claims depend, but, in fact, D'Alelio is not properly combinable with Fuss.

D'Alelio teaches preparation of polymers containing organic nitrile groups and crosslinking the nitrile groups by reaction with aldehyde (D'Alelio, page 2, right column, lines 20-25).

First, the combination of Fuss and D'Alelio would not result in the present invention because neither Fuss nor D'Alelio teaches crosslinking polymers by an esterification reaction between groups (1) and (4), as recited in Claim 16 of the present invention.

Secondly, it is well established in Patent Law that it is improper to assume that different chemical structures would have the same properties, absent a teaching of equivalency in the prior art:

Upon review of this history, we have concluded that generalization should be avoided insofar as specific chemical structures are alleged to be *prima facie* one from the other. [...] [I]n the case before us there must be adequate support in the prior art for the ester/thioester change in structure in order to complete the PTO's *prima facie* case and shift the burden of going forward to the applicant. (*In re Grabiak* 226 USPQ 870 (CAFC 1985)).

In the present case, D'Alelio teaches crosslinking via nitriles, while the modification of Fuss required to arrive at Applicants' invention is crosslinking via esterification. Because the chemistry involved is different, it is improper to assume that the teachings of D'Alelio is applicable to the polymers of Fuss. Moreover, Applicants claims require a specific type of crosslinking, *i.e.*, direct esterification between groups (1) and (4). The Examiner's rejection appears to rely on the assumption that any type of crosslinking would result in a composition suitable for manufacturing films, coats, and laminated safety glass. However, *In Re Grabiak* sets forth as a legal principle that this assumption is improper. Without experimentation, based solely on the teachings of D'Alelio that pertains to crosslinking via nitriles, one of ordinary skill in the art would not know whether crosslinking via esterification of groups (1) and (4) would be successful or would result in a product having the advantageous properties enumerated by Applicants.

Accordingly, one of ordinary skill in the art would not be motivated to combine Fuss and D'Alelio, and, even if combined, these references fail to teach each and every element of Claim 16. Thus, the *prima facie* case of obviousness is not established.

Reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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Dated:

9/15/06